JAN 60742

Access DB# _____

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: R GITOMER Examiner # : 69630 Date: 2/19/02
Art Unit: 1623 Phone Number 308-0732 Serial Number: 09/642,504
Mail Box and Bldg/Room Location: 4B19 Results Format Preferred (circle): PAPER DISK E-MAIL
7A11

If mor than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

JAN

Jan Delaval
Reference Librarian
Biotechnology & Chemical Library
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jan.delaval@uspto.gov

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable	
Searcher: JAN	NA Sequence (#)		STN	✓
Searcher Phone #: 4498	AA Sequence (#)		Dialog	
Searcher Location:	Structure (#)	✓	Questel/Orbit	
Date Searcher Picked Up: 3/5/02	Bibliographic	✓	Dr.Link	
Date Completed: 3/5/02	Litigation		Lexis/Nexis	
Searcher Prep & Review Time:	Fulltext		Sequence Systems	
Clerical Prep Time: 30	Patent Family		WWW/Internet	
Online Time: + 55	Other		Other (specify)	

PTO-1590 (8-01)

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=> d his

     (FILE 'HOME' ENTERED AT 16:06:15 ON 05 MAR 2002)
               SET COST OFF

     FILE 'REGISTRY' ENTERED AT 16:06:37 ON 05 MAR 2002
L1             1 S OXYGEN/CN

     FILE 'HCAPLUS' ENTERED AT 16:06:56 ON 05 MAR 2002
                E PITNER J/AU
L2            39 S E4-E6,E8,E9
                E GUARINO R/AU
L3            16 S E3,E5-E7
                E DIKE L/AU
L4             7 S E4-E6
                E TIMMINS M/AU
L5            13 S E3,E6,E8-E10
                E STITT D/AU
L6             8 S E3,E11,E12
                E HU J/AU
L7           244 S E3
                E HU JOANNA/AU
L8             6 S E4,E5
                E HU JO ANNA/AU
L9           332 S L2-L8
L10           12 S TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM (1W) CHLORIDE
L11          104 S TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM
L12            0 S TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM (L) SALT
L13            0 S TRIS 2 2# BIPYRIDINYL RUTHENIUM (1W) CHLORIDE HEXAHYDRATE
L14            0 S TRIS 2 2# BIPYRIDINYLRUTHENIUM (1W) CHLORIDE HEXAHYDRATE
L15            0 S TRIS 2 2# BIPYRIDINYLRUTHENIUM
L16            0 S TRIS 2 2# BIPYRIDINYL RUTHENIUM
L17         1217 S 9 10() (DIPHENYL ANTHRACENE OR DIPHENYLANTHRACENE)
L18            1 S TRIS 2 2# BIPYRIDINE RUTHENIUM (1W) CHLORIDE HEXAHYDRATE
L19         1389 S TRIS 2 2# BIPYRIDINE RUTHENIUM
L20            2 S L19 (L) CHLORIDE (L) HEXAHYDRATE

     FILE 'REGISTRY' ENTERED AT 16:16:24 ON 05 MAR 2002
L21            1 S 63373-04-6
L22           13 S 63373-04-6/CRN
L23            1 S 36309-88-3
L24            9 S  L22 AND 18/NR
L25            4 S L22 NOT L23,L24
L26            1 S 15158-62-0
L27          150 S 15158-62-0/CRN
L28           12 S L27 AND CL/ELS AND  H2O
L29            7 S L28 AND 3/NC
L30            4 S L29 NOT CD/ELS
L31          146 S L27 NOT L30
L32            1 S 1499-10-1

     FILE 'HCAPLUS' ENTERED AT 16:21:12 ON 05 MAR 2002
L33          147 S L24,L25
L34         3004 S L26,L30,L31
L35         1192 S L32
L36         3046 S L10-L20,L35
L37          386 S L36 AND (L1 OR OXYGEN?)
L38           36 S L32 AND O2
L39          392 S L37,L38
L40          578 S L36 AND OXIDAT?
L41           73 S L36 AND OXIDATIVE
L42          864 S L39-L41
L43           26 S L42 AND ENZYM?/SC,SX,CW,BI
L44            0 S L42 AND (CYTOCHROME(L)(P450? OR P 450)(L)REDUCTASE)
L45            0 S L42 AND CYTOCHROME(L)(P450? OR P 450)
L46            0 S L42 AND CYP450?
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L47        6153 S CYTOCHROME(L)(P450? OR P 450)(L)REDUCTASE

     FILE 'REGISTRY' ENTERED AT 16:25:13 ON 05 MAR 2002
L48           2 S 9035-51-2 OR 9039-06-9
L49        2326 S CYTOCHROME(L)P 450
L50        2324 S L49 NOT L48

     FILE 'HCAPLUS' ENTERED AT 16:25:32 ON 05 MAR 2002
L51       32303 S L48
L52       41865 S CYTOCHROME(L)(P450? OR P 450)
L53         398 S CYP450?
L54         398 S ?CYP450?
L55       42546 S L51-L54
L56           0 S L42 AND L55
L57           0 S L36 AND L55
L58        3329 S L36 OR TRIS 2 2# BIPYRIDYL RUTHENIUM
L59        3061 S L36 OR TRIS 2 2# BIPYRIDYL RUTHENIUM (1W) CHLORIDE HEXAHYDRAT
L60        3046 S L36 OR TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM (1W) C
L61        3046 S L36 OR TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM
L62        3329 S L58-L61
L63        3046 S L36 OR TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM?
L64        3329 S L62,L63
L65           1 S L9 AND L64
L66           2 S L55 AND L64
L67       42293 S CYTOCHROM?(L)(P450? OR P 450?)
L68           2 S L64 AND L67
L69           3 S L65,L66,L68
L70        4432 S L26 OR L64
L71           3 S L70 AND L55,L67
L72           4 S L69,L71
L73        1295 S L70 AND  (L1 OR O2 OR OXYGEN? OR OXIDATIVE OR OXIDAT?)
L74         265 S L70 AND (CO OR CARBON MONOXIDE)
L75         819 S L70 AND OXIDATION

     FILE 'REGISTRY' ENTERED AT 16:35:55 ON 05 MAR 2002
L76           1 S CARBON MONOXIDE/CN

     FILE 'HCAPLUS' ENTERED AT 16:35:59 ON 05 MAR 2002
L77          16 S L76 AND L70
               E RESPIRATION/CT
               E E3+ALL
L78           1 S L70 AND (E1 OR E2+NT OR E3+NT OR E4+NT)
L79           2 S L70 AND RESPIRATION
L80           1 S L70 AND RESPIRATION?/CT
L81          21 S L72,L77-L80
L82         191 S L70 AND ?SENSOR?
L83        1521 S L70 AND ?LUMINES?
L84        1100 S L70 AND (IRRADIAT? OR RADIAT? OR LIGHT OR WAVELENTH)
L85         207 S L70 AND MATRIX
L86          83 S L70 AND (RUBBER OR PLASTIC OR SILICONE)
L87         177 S L70 AND (SILICA OR SIO2 OR SILICON DIOXIDE)

     FILE 'REGISTRY' ENTERED AT 16:38:49 ON 05 MAR 2002
L88           1 S 7631-86-9

     FILE 'HCAPLUS' ENTERED AT 16:38:55 ON 05 MAR 2002
L89          87 S L70 AND L88
L90         127 S L83,L84 AND L82
L91           0 S L90 AND L81
L92          33 S L90 AND 9/SC,SX

     FILE 'REGISTRY' ENTERED AT 16:40:01 ON 05 MAR 2002

     FILE 'HCAPLUS' ENTERED AT 16:41:01 ON 05 MAR 2002
L93        1026 S L22,L27
L94        4976 S L93,L70
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L95           3 S L94 AND L55,L67
L96           4 S L72,L95
L97         106 S L94 AND ENZYM?/SC,SX,CW,BI
L98         109 S L96,L97
L99          46 S L98 AND ?LUMINESC?
L100         23 S L98 AND SENSOR
L101         11 S L98 AND MATRIX
L102         14 S L98 AND (RUBBER OR PLASTIC OR ELASTOMER? OR SILICONE OR L88 O
L103         32 S L98 AND (IRRADIAT? OR RADIAT? OR LIGHT OR WAVELENTH)
L104         11 S L98 AND RADIAT?/SC,SX
L105         59 S L98 AND 9/SC,SX
L106         55 S L105 AND L99-L104
L107          4 S L105 NOT L106
L108         20 S L106,L107 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L109         44 S L98 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L110         20 S L108,L109 AND 9/SC,SX
L111       1683 S L94 AND (L1 OR O2 OR OXYGEN? OR OXIDAT? OR L76 OR CARBON MONO
L112       1009 S L111 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L113         21 S L112 AND L98
L114          8 S L94 AND RESPIR?
L115          1 S L114 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L116         22 S L113,L115
L117         32 S L110,L116
L118         13 S L109 NOT L117
               SEL DN 6
L119          1 S L118 AND E1
L120         31 S L117,L110 NOT L115
L121          1 S L9 AND L94
               E US5567598/PN
L122         16 S L9 AND P/DT
               SEL DN 7
L123          1 S E1 AND L122
L124          1 S L121,L123

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 16:57:44 ON 05 MAR 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 5 Mar 2002  VOL 136 ISS 10
FILE LAST UPDATED: 4 Mar 2002  (20020304/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

CAS roles have been modified effective December 16, 2001. Please
check your SDI profiles to see if they need to be revised. For
information on CAS roles, enter HELP ROLES at an arrow prompt or use
the CAS Roles thesaurus (/RL field) in this file.

The P indicator for Preparations was not generated for all of the
CAS Registry Numbers that were added to the CAS files between 12/27/01
and 1/23/02.  As of 1/23/02, the situation has been resolved.  Searches
and/or SDIs in the H/Z/CA/CAplus files incorporating CAS Registry
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Numbers with the P indicator executed between 12/27/01 and 1/23/02 may be incomplete. See the NEWS message on this topic for more information.

=> d all hitstr l115

L115 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2002 ACS
AN 1987:611094 HCAPLUS
DN 107:211094
TI Determination of oxygen concentrations by luminescence quenching of a polymer-immobilized transition-metal complex
AU Bacon, J. R.; Demas, J. N.
CS Chem. Dep., West. Carolina Univ., Cullowhee, NC, 28723, USA
SO Anal. Chem. (**1987**), 59(23), 2780-5
CODEN: ANCHAM; ISSN: 0003-2700
DT Journal
LA English
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 9
AB Oxygen quenching of the luminescence of the **tris**(**4,7-diphenyl-1,10-phenanthroline**)**ruthenium**(II) perchlorate immobilized in a silicone rubber is an accurate and precise method for measuring oxygen concns. in solns. and in the gas phase. Quenching can be quantitated by either lifetime or intensity quenching measurements. Aq. strong acids, bases, complexing agents, oxidants, and reductants do not penetrate the hydrophobic polymer and, therefore, do not affect the response. Gaseous interferents, such as H2S, anesthetic gases (e.g., N2O, halothane), and fluorocarbons do not affect the response. Chlorine and esp. SO2 are strong, but fully reversible, interferents. A system was developed with a response time of <0.2 s, which is adequate for the monitoring of breathing subjects.
ST oxygen detn luminescence quenching; phenylphenanthrolineruthenium perchlorate luminescence quenching oxygen detn; ruthenium complex luminescence quenching oxygen detn; polymer immobilized complex luminescence oxygen detn; breathing monitoring oxygen detn
IT Gas analysis
(for oxygen by luminescence quenching of silicone rubber-immobilized tris(diphenylphenanthroline)ruthenium perchlorate)
IT Luminescence quenching
(of tris(diphenylphenanthroline)ruthenium perchlorate immobilized in silicone rubber, oxygen detn. by)
IT Animal breathing
(oxygen detn. by luminescence quenching of tris(diphenylphenanthroline)ruthenium perchlorate for monitoring of)
IT **Respirators**
(oxygen detn. in, by luminescence quenching of tris(diphenylphenanthroline)ruthenium perchlorate immobilized in silicone rubber)
IT Rubber, silicone, uses and miscellaneous
RL: USES (Uses)
(tris(diphenylphenanthroline)ruthenium perchlorate immobilized in, oxygen detn. by luminescence quenching of)
IT 7782-44-7
RL: ANST (Analytical study)
(animal breathing, oxygen detn. by luminescence quenching of tris(diphenylphenanthroline)ruthenium perchlorate for monitoring of)
IT 7782-44-7, Oxygen, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, by luminescence quenching of polymer-immobilized tris(diphenylphenanthroline)ruthenium perchlorate)
IT 7782-44-7
RL: ANST (Analytical study)
(**respirators**, oxygen detn. in, by luminescence quenching of tris(diphenylphenanthroline)ruthenium perchlorate immobilized in silicone rubber)
IT **75213-31-9**

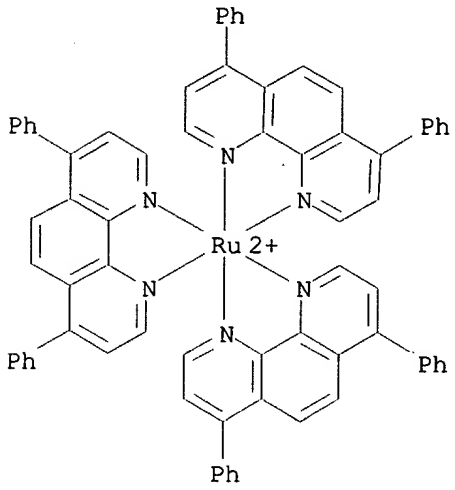
RL: ANST (Analytical study)
(silicone rubber-immobilized, oxygen detn. by luminescence quenching of)

IT **75213-31-9**
RL: ANST (Analytical study)
(silicone rubber-immobilized, oxygen detn. by luminescence quenching of)

RN 75213-31-9 HCAPLUS
CN Ruthenium(2+), tris(4,7-diphenyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-, (OC-6-11)-, diperchlorate (9CI) (CA INDEX NAME)

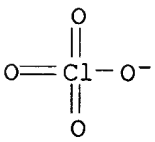
CM 1

CRN 63373-04-6
CMF C72 H48 N6 Ru
CCI CCS
CDES 7:OC-6-11



CM 2

CRN 14797-73-0
CMF Cl O4



=> d all hitstr l124

L124 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2002 ACS
AN 1998:197636 HCAPLUS
DN **128:215269**
TI Detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen
IN **Stitt, David T.**; Burrell, Gregory J.; Beaty, Shawn; **Hu, Joanna Kwok Yu**; Monthony, James F.; Sapitowicz, Robert; Foley, Timothy G.
PA Becton, Dickinson and Company, USA; Stitt, David T.; Burrell, Gregory J.;

Beaty, Shawn; Hu, Joanna Kwok Yu; Monthony, James F.; Sapitowicz, Robert; Foley, Timothy G.

SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C12Q001-04
ICS C12Q001-18
CC 9-12 (Biochemical Methods)
Section cross-reference(s): 1, 10
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9812348	A1	19980326	WO 1997-US16496	19970918
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9744839	A1	19980414	AU 1997-44839	19970918
EP 1021557	A1	20000726	EP 1997-943349	19970918
R: DE, FR, GB, IT				
JP 2002501363	T2	20020115	JP 1998-514841	19970918
PRAI US 1996-715557	A	19960918		
WO 1997-US16496	W	19970918		

AB The present invention relates to a method for detecting the presence of respiring microorganisms in a fluid. It is an object of this invention to provide an improved means to detect the presence of, and to evaluate the metabolic activity of, microorganisms present in a liq. or semi-solid media. It is further an object of this invention to provide a microbial monitoring device or system which can be simply read and visually interpreted, and which permits results to be obtained in a shorter time period than previously attainable, nominally 6 h or less. These processes use a fluorescence detection system wherein the fluorescing sensor compd. is one which exhibits a quantifiable degree of quenching when exposed to oxygen, including **tris-4,7-diphenyl -1,10-phenanthroline rutheniumm** (II) chloride, **tris-2,2'-bipyridyl ruthenium** (II) **chloride hexahydrate** and **9,10-diphenyl anthracene.**

ST microorganism respiration fluorescence sensor oxygen quenching

IT Antibiotics
Antimicrobial agents
Escherichia coli
Fluorescence
Fluorescence quenching
Fluorescent indicators
Fluorometry
Microorganism
Mycobacterium fortuitum
Oxygen sensors
Pseudomonas aeruginosa
Reducing agents
Respiration (microbial)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

IT Silicone rubber, analysis
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); NUU (Other use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to

oxygen)

IT Plastics, analysis
Rubber, analysis
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); NUU (Other use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(matrix; detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

IT 108-95-2, Phenol, biological studies 7758-98-7, Copper sulfate, biological studies
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

IT **1499-10-1, 9,10-Diphenyl anthracene 15158-62-0 36309-88-3 50525-27-4, Tris-2,2'-bipyridyl ruthenium (II) chloride hexahydrate** 63373-04-6
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

IT 7631-86-9, Silica, analysis
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); NUU (Other use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

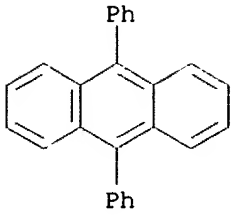
IT 35607-66-0, Cefoxitin 55268-75-2, Cefuroxime 85721-33-1, Ciprofloxacin
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

IT 7782-44-7, Oxygen, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

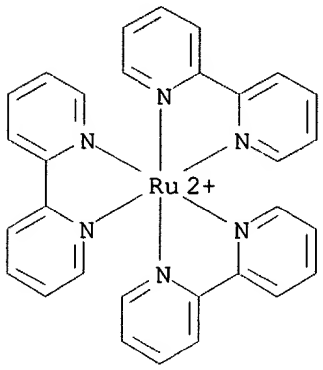
IT 7757-83-7, Sodium sulfite
RL: BUU (Biological use, unclassified); NUU (Other use, unclassified); BIOL (Biological study); USES (Uses)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

IT **1499-10-1, 9,10-Diphenyl anthracene 15158-62-0 36309-88-3 50525-27-4, Tris-2,2'-bipyridyl ruthenium (II) chloride hexahydrate**
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(detecting the presence of respiring microorganisms in a fluid using a fluorescing sensor which exhibits a degree of quenching when exposed to oxygen)

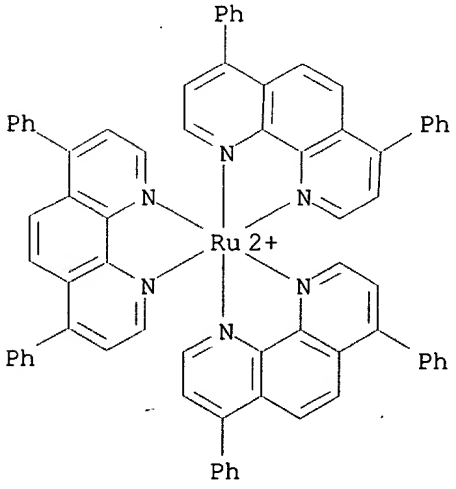
RN 1499-10-1 HCAPLUS
CN Anthracene, 9,10-diphenyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 15158-62-0 HCAPLUS
CN Ruthenium(2+), tris(2,2'-bipyridine-.kappa.N1,.kappa.N1')-, (OC-6-11)-(9CI) (CA INDEX NAME)

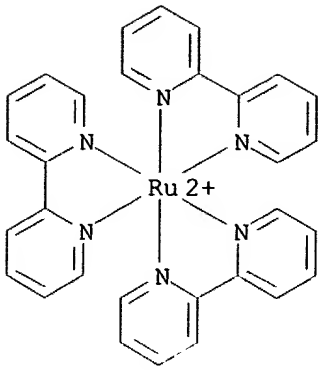


RN 36309-88-3 HCAPLUS
CN Ruthenium(2+), tris(4,7-diphenyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-, dichloride, (OC-6-11)- (9CI) (CA INDEX NAME)



2 Cl^-

RN 50525-27-4 HCAPLUS
CN Ruthenium(2+), tris(2,2'-bipyridine-.kappa.N1,.kappa.N1')-, dichloride, hexahydrate, (OC-6-11)- (9CI) (CA INDEX NAME)



●6 H_2O

●2 Cl^-

=> d l120 bib abs hitrn tot

L120 ANSWER 1 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1993:644955 HCAPLUS
DN 119:244955
TI Imaging fiber-optic array **sensors**, apparatus, and methods for concurrently detecting multiple analytes of interest in a fluid sample
IN Walt, David R.; Barnard, Steven M.
PA Trustees of Tufts College, USA
SO U.S., 37 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5244636	A	19930914	US 1991-645787	19910125 <--
	US 5244813	A	19930914	US 1992-870949	19920420 <--
	US 5320814	A	19940614	US 1992-981884	19921125 <--
	US 5250264	A	19931005	US 1992-994552	19921221 <--
PRAI	US 1991-645787		19910125 <--		

AB A fiber-optic **sensor** is disclosed which is able to conduct multiple assays concurrently using a plurality of different dyes immobilized at individual spatial positions on the surface of the **sensor**. Also provided are an app. for making precise optical detns. and measurements for multiple analytes of interest concurrently and methods of detection for multiple analytes of interest which can be correlated with specific parameters or other ligands for specific applications and purposes. A fiber-optic **sensor** for concurrent measurement of pH and **oxygen** is described which contains both a photopolymd. fluorescein dye at 1 precise spatial position and a photopolymd. ruthenium dye at a 2nd precise spatial position on the distal optic array surface of the **sensor**. A **sensor** for pH and CO2 concn. is also described.

IT **7782-44-7, Oxygen**, analysis
RL: ANST (Analytical study)
(detn. of multiple analytes including, fiber-optic **sensor** with multiple spatially positioned dyes for)

IT **14323-06-9**
RL: ANST (Analytical study)
(multiple spatially positioned dye-contg. fiber-optic **sensor** with, for multiple analyte concurrent detn.)

L120 ANSWER 2 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1992:608461 HCAPLUS
DN 117:208461
TI optical probe and method for monitoring analyte concentration
IN Sharma, Ashutosh
PA Iowa State University Research Foundation, Inc., USA
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9212424	A1	19920723	WO 1991-US4015	19910607 <--
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
	AU 9187208	A1	19920817	AU 1991-87208	19910607 <--
PRAI	US 1991-638043		19910104 <--		
	WO 1991-US4015		19910607 <--		

AB An optical probe for measuring the concn. of an analyte (or partial pressure of a gas) in a sample comprises an indicator **matrix** contg. .gtoreq.2 different **luminescent** (fluorescent or phosphorescent) mols., the **luminescence** of each of which is quenched by the analyte. Each of the **luminescent** mols. has .gtoreq.1 major band in its absorption spectrum that overlaps with .gtoreq.1 major band in the absorption spectrum of each of the other **luminescent** mols., and each of the **luminescent** mols. has .gtoreq.1 major band in its emission spectrum that overlaps with .gtoreq.1 major band in the emission spectrum of each of the other **luminescent** mols., so that all the **luminescent** mols. may be coexcited at a common wavelength and the emitted **luminescence** from all the mols. can be monitored at a common wavelength. The coexcitation results in improved photostability of the mols., since the excitation energy is shared among the mols. The **luminescent** mols. may be immobilized on a support and/or enclosed in an analyte-permeable membrane. Thus, a fiber-optic O **sensor** had at its tip a disk of filter paper impregnated with 2 fluorescent mols., perylene dibutyrate and decacyclene. The probe, with excitation at 410 nm and measurement at 510 nm, was highly sensitive to minute changes in O concn.

IT **7782-44-7, Oxygen**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, by **luminescence** quenching of multiple **luminescent** substances)

IT **1499-10-1, 9,10-Diphenylanthracene**
RL: PROC (Process)
(**luminescence** quenching of, in chlorine detn.)

L120 ANSWER 3 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1992:169480 HCAPLUS
DN 116:169480
TI **Tris(2,2'-bipyridine)** **ruthenium**(II) as a peroxide-producing replacement for **enzymes** as chemical labels
AU Ismail, Kamal Z.; Weber, Stephen G.
CS Dep. Chem., Univ. Pittsburgh, Pittsburgh, PA, 15260, USA
SO Biosens. Bioelectron. (**1991**), 6(8), 699-705
CODEN: BBIOE4; ISSN: 0956-5663
DT Journal
LA English
AB The concn. of the ruthenium-based labels is det. from the rate of H2O2 prodn. elicited by photolysis. Electron transfer quenching of the photoexcited label by Me viologen (1,1'-dimethyl-4,4'-bipyridinium dication, MV2+) and/or **oxygen** in the presence of EDTA generates H2O2. Both flow injection and direct photolysis techniques were tested, with the latter showing better results. Direct photolysis is more

sensitive, faster, requires only a 20 .mu.L sample vol., uses only 30 mV laser power and shows a smaller background. The presence of 5% normal human serum in the sample did not interfere with the measurements. Linear calibration curves were obtained in the nanomolar concn. range for goat antimouse antibody labeled with the ruthenium complex. The detn. of membrane-surface-bound labeled IgG is accomplished by direct photolysis of a membrane that covers a platinum microelectrode.

IT **7782-44-7, Oxygen**, uses
RL: USES (Uses)
(**oxidative** quencher, for photolyzed bipyridineruthenium complex, replacement of hydrogen peroxide producing **enzymes** with bipyridineruthenium complex in relation to)

IT **15158-62-0**
RL: RCT (Reactant)
(photolysis of, replacement of hydrogen peroxide producing **enzymes** in relation to)

L120 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1992:54796 HCAPLUS
DN 116:54796
TI Peroxyoxalate **chemiluminescence** assay of hydrogen peroxide and glucose using 2,4,6,8-tetrathiomorpholinopyrimido[5,4-d]-pyrimidine as a fluorescent component
AU Nakashima, Kenichiro; Maki, Kouichi; Kawaguchi, Shinki; Akiyama, Shuzo; Tsukamoto, Yukie; Imai, Kazuhiro
CS Sch. Pharm. Sci., Nagasaki Univ., Nagasaki, 852, Japan
SO Anal. Sci. (**1991**), 7(5), 709-13
CODEN: ANSCEN; ISSN: 0910-6340
DT Journal
LA English
AB Peroxyoxalate **chemiluminescence** (CL) assay of H2O2 or glucose was developed by using 2,4,6,8-tetrathiomorpholinopyrimido[5,4-d]pyrimidine as a fluorescent component and bis(2,4,6-trichlorophenyl)oxalate (TCPO) as an oxalate. Linear relationships between CL intensity and final concn. of H2O2 from 10-8 to 10-4 M were obtained. The detection limit at the ratio of CL intensities for sample and blank (S/B) of 3 was 10 nM. The precision for five replicate measurements at 10-5 and 10-6 M of H2O2 were 17.6 and 15.7% of relative std. deviations, resp. .alpha.-D-Glucose was transformed to .beta.-D-glucose with mutarotase and converted to H2O2 and D-gluconic acid with glucose oxidase, which was detected by using peroxyoxalate CL reaction. A linear calibration graph was obtained up to 1.5 .times. 10-4 M of glucose soln. The method was applied to the assay of glucose in human serum. The recovery was 98.2% (n = 4). The method correlated well with the conventional colorimetric method (r = 0.968).

IT **1499-10-1, 9,10-Diphenylanthracene**
RL: ANST (Analytical study)
(relative **chemiluminescence** intensity for, as **luminescent** enhancer)

L120 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1991:602724 HCAPLUS
DN 115:202724
TI Fluorescent probe for rapid measurement of concentration of glucose or other analyte
IN Cox, Mary E.; Parker, Jennifer W.
PA University of California, Alameda, USA
SO U.S., 16 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5034189	A	19910723	US 1985-769881	19850827 <--

AB A fluorescent optical probe employed for the detn. of an analyte in a

fluid employs a permeable, transparent polymeric **matrix** in which a fluorophore is immobilized, with the polymeric material being directly exposed to the fluid being analyzed. The composite material of the probe may be made up of a homogeneous **matrix** of transparent polymer, fluorescent compd., catalyst(s) and reagents(s) and is employed to measure analyte concn. in a fluid in the environment surrounding the material. For analyzing O, the fluorophore may be **9,10-diphenylanthracene** (I) and the polymer **matrix** may be poly(di-Me siloxane) or **silicone**, with the presence of O quenching the fluorescence of I. For analyzing the concn. of glucose, the polymeric material may be poly(hydroxyethyl methacrylate) (PHEMA), the fluorophore may be I, and as catalytic material, glucose oxidase may also be immobilized within the PHEMA **matrix** to reduce the quenching action of O, with increased output **radiation** therefore indicating higher levels of glucose. More generally, the fluorophore, catalyst, and other reagents, when utilized, are immobilized, either phys. or chem., in a homogeneous manner throughout the polymer. Examples of other analytes and catalysts are given. Formation of the PHEMA **matrix** contg. I and glucose oxidase is described, as is formation of a **silicone matrix**.

IT **7782-44-7, Oxygen**, properties
RL: PRP (Properties)
(diffusion coeff. of, in diphenylanthracene-contg. poly(hydroxyethyl methacrylate), fluorescent probe in relation to)

IT **1499-10-1, 9,10-Diphenylanthracene**
RL: ANST (Analytical study)
(fluorescent anal. probe contg., in polymer **matrix**)

L120 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1991:202318 HCAPLUS
DN 114:202318
TI Electrically wired glutathione reductase: a biocatalyst for the photochemical reduction of glutathione
AU Willner, Itamar; Lapidot, Noa
CS Inst. Chem., Hebrew Univ. Jerusalem, Jerusalem, 91904, Israel
SO J. Am. Chem. Soc. (**1991**), 113(9), 3625-6
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB Glutathione reductase was chem. modified by a bipyridinium electron relay. The modified **enzyme** exhibited electron transfer properties, as well as an ability to interact directly with excited species. The modified **enzyme** was incorporated in a photochem. system that reduced oxidized glutathione (GSSG) to its reduced form (GSH) in the absence of its natural cofactor, NAD(P)H. The relation between the relay loading of the **enzyme** and the reaction rate was investigated. The rate-limiting step of the redn. was the primary electron transfer between the excited sensitizer and the protein-bound relay. Immobilization of the relay-modified **enzyme** in a redox copolymer **matrix** composed of acrylamide and bipyridinium acrylamide resulted in improved biocatalyst erformance.

IT **15158-62-0**
RL: RCT (Reactant)
(reaction of, with glutathione reductase-bipyridinium conjugate)

L120 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1990:511500 HCAPLUS
DN 113:111500
TI Electrochemical luminescence with N(5)-ethyl-4a-hydroxy-3-methyl-4a, 5-dihydrolumiflavin. The mechanism of bacterial luciferase
AU Kaaret, Thomas W.; Bruice, Thomas C.
CS Dep. Chem., Univ. California, Santa Barbara, CA, 93106, USA
SO Photochem. Photobiol. (**1990**), 51(5), 629-33
CODEN: PHCBAP; ISSN: 0031-8655
DT Journal
LA English

AB It has been proposed in the literature that the chemiluminescence of the flavoenzyme of bacterial luciferase is caused by a chem. initiated electron-exchange luminescence mechanism which provides an excited 4a-hydroxy-4a,5-dihydroflavin ([4a-FlHOH]*) as product of 1e- redn. of the radical 4a-FlHOH.bul.+. Electrochem./photon counting expts. were performed to assess the feasibility of this proposal. Potentials for step-wise **oxidn**. of N(5)-ethyl-4a-hydroxy-4a,5-dihydroluminflavin (4a-FlEtOH) have been detd. in dry N,N-dimethylformamide (DMF). Photon counting was carried out during the 1e- redn. of 4a-FlEtOH.bul.+ in both DMF and CH3CN by use of an app. consisting of a photocell mounted below a Pt ring-disk electrode. By use of the ring-disk electrode a steady state concn. of [4a-FlEtOH]* could be maintained by continuous 1e- **oxidn**. of 4a-FlEtOH .fwdarw. 4a-FlEtOH.bul.+ and 1e- redn. of 4a-FlEtOH.bul.+ .fwdarw. 4a-FlEtOH. A max. of 14% collection (theor. max. is 18%) of FlEtOH.bul.+ at the ring electrode was obtained <5000 rotations per min. Calibration of the app. using **9,10-diphenylanthracene** allowed approxn. of the quantum yield for 1e- reductive capture of 4a-FlEtOH.bul.+ as 10-6 to 10-4 in DMF and 10-7 to 10-5 in CH3CN. No fluorescence for 4a-FlEtOH in DMF could be obsd.; if fluorescent, the efficiency of 4a-FlEtOH can be no greater than .apprx.3 .times. 10-5. No electrogenerated chemiluminescence is obsd. on the electrochem. recycling of FlEt+ .fwdarw. FlEt2+ and FlEt2+ .fwdarw. FlEt+.

L120 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1990:94812 HCAPLUS
DN 112:94812
TI Photochemically induced **oxidative** and reductive regeneration of NAD(P)+/NAD(P)H cofactors: applications in biotransformations
AU Willner, Itamar; Maidan, Ruben; Willner, Bilha
CS Fritz Haber Res. Cent. Mol. Dyn., Hebrew Univ., Jerusalem, 91904, Israel
SO Isr. J. Chem. (**1989**), 29(2-3), 289-301
CODEN: ISJCAT; ISSN: 0021-2148
DT Journal
LA English
AB Photosensitized regeneration of NAD(P)H cofactors is accomplished by biocatalyzed and artificially catalyzed transformations in photochem. assemblies. Photogenerated N,N'-dimethyl-4,4'-bipyridinium radical cation, MV+., acts as electron carrier for the redn. of NADPH in the presence of the **enzyme** ferredoxin reductase and for the redn. of NADH in the presence of lipoamide dehydrogenase. For the photogeneration of MV+. and subsequent NADPH formation, 3 different photosensitizers are applied: Ru(bpz)32+, Ru(bpy)32+, and Zn-TMPyP4+. The highest quantum yield for NADPH formation is obsd. with Ru(bpz)32+ and is .vphi. = 1.7 .times. 10-1. For NADH regeneration only Zn-TMPyP4+ can be applied. Ru(bpy)32+ and Ru(bpz)32+ interact with NADH in their excited or oxidized forms and therefore cannot be used as **light**-active compds. in the system. The NADPH regeneration cycle has been coupled to the biocatalyzed synthesis of glutamic acid. Although Ru(bpz)32+ is 42.5-fold more efficient than Ru(bpy)32+ in the regeneration of NADPH, the synthesis of glutamic acid is improved only by a factor of 2 in the presence of Ru(bpz)32+, implying that the coupled process is rate limiting. **Oxidative** regeneration of the NAD+ cofactor is accomplished in a photosystem that includes Ru(bpy)32+ as photosensitizer. The photoprocess is coupled to dehydrogenation of ethanol, propanol, lactic acid, and alanine with concomitant H2 evolution. A photosystem that includes Ru(bpy)32+ as photosensitizer, ascorbate as electron donor, and chloro-tris-(3-diphenylphosphinobenzene sulfonate)Rh(I), RhCl(dpm)33-, is catalytically active in the photoinduced regeneration of NAD(P)H cofactors. Mechanistic investigations show that photogenerated Ru(bpy)3+ mediates the generation of a hydrido-rhodium complex that acts as a charge relay for the prodn. of NAD(P)H.
IT **14323-06-9**
RL: MSC (Miscellaneous)
(NADPH and NADP photochem. regeneration in presence of)

L120 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1989:570525 HCAPLUS
DN 111:170525
TI Optical studies of the dynamics of surface photochemistry-photochemical chronoabsorptometry in bioanalytical chemistry
AU Ismail, Kamal Z.; Sgroi, Karen T.; Weber, Stephen G.
CS Fac. Sci., Univ. Alexandria, Alexandria, Egypt
SO Alexandria J. Pharm. Sci. (**1989**), 3(1), 5-7
CODEN: AJPSES
DT Journal
LA English
AB Photoelectroanal. chem. (PEAC) of a system contg. Ru(bpy)32+, **tris (2,2'-bipyridine)ruthenium** (II), adsorbed on fused **silica**, Me viologen and EDTA was used to detect the concn. of the ruthenium complex. Also, the concn. of goat antimouse (IgG) labeled with ruthenium complex was detd. Two laser beams were used. An Ar-ion laser beam was used as a pump laser to excite the ruthenium complex and a He-Ne laser probe beam was used to monitor the formation of MV+.bul. (blue radical ion). This technique may be useful in an ELISA format.
IT **14323-06-9 14323-06-9D**, complexes with Igs
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, photoelectroanal. chem. in)

L120 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1989:204680 HCAPLUS
DN 110:204680
TI Optical sensor for hydrogen peroxide
AU Posch, Hermann, E.; Wolfbeis, Otto S.
CS Inst. Org. Chem., Karl-Franzens Univ., Graz, A-8010, Austria
SO Mikrochim. Acta (**1989**), 1(1-2), 41-50
CODEN: MIACAQ; ISSN: 0026-3672
DT Journal
LA English
AB Three types of sensors for continuous detn. of hydrogen peroxide are described. The working principles are based on the decompn. of H2O2 by a catalyst and on the measurement of the amt. of **oxygen** thereby produced. The change in **oxygen** concn. is quant. detd. via the quenching of the fluorescence of a silica gel-adsorbed dye [Ru(bpy)3]Cl2 (bpy = 2,2'-bipyridine) entrapped in silicone rubber. Three methods are useful for H2O2 decompn. In the first one, the **enzyme** catalase (which acts as the catalyst) is **co**-adsorbed onto silica gel and thus is in the same phase as the indicator. In the second one, the **enzyme** and the dye are adsorbed on different silica gel particles which then are incorporated into the polymer layer. In the third one, finely dispersed silver powder (another catalyst) is embedded in a silicone rubber layer that is spread over the **oxygen** sensing membrane. The sensor is capable of continuously recording H2O2 in the 0.1-10.0mM concn. range, with a precision of .+-.0.1 at 1mM H2O2. Its response time varies from 2.5 to 5 min. The method lacks the sensitivity of amperometry but is not prone to interferences by other electroactive substances.
IT **7782-44-7, Oxygen**, uses and miscellaneous
RL: USES (Uses)
(fluorescence quenching by, of ruthenium bipyridine complex in continuous detn. of hydrogen peroxide)
IT **14323-06-9, Tris(2,2'-bipyridine)ruthenium**(2+) dichloride
RL: ANST (Analytical study)
(in **oxygen**-sensitive fluorescence-quenching sensor for continuous hydrogen peroxide detn.)

L120 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1989:68764 HCAPLUS
DN 110:68764
TI Optical sensors. Part 20. A fiber optic ethanol biosensor

AU Wolfbeis, Otto S.; Posch, Hermann E.
CS Inst. Org. Chem., Karl-Franzens-Univ., Graz, A-8010, Austria
SO Fresenius' Z. Anal. Chem. (**1988**), 332(3), 255-7
CODEN: ZACFAU; ISSN: 0016-1152
DT Journal
LA English
AB A fiber optic biosensor for ethanol was developed, which is based on the **enzymic oxidn.** of ethanol. The sensor layer contains an **oxygen**-sensitive fluorescing indicator which reports the decrease in the local **oxygen** partial pressure as the result of the **enzymic oxidn.** The sensor measures in the 50-500 mmol/L ethanol range, with an accuracy of .+-.4 mmol/L at 100 mmol/L. The detection limit is 10 mmol/L ethanol. The sensor is feasible for ethanol detn. in most types of fermn. processes including beer brewing.
IT **14323-06-9**
RL: ANST (Analytical study)
(in fiber optic ethanol biosensor for anal.)

L120 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:545504 HCAPLUS
DN 109:145504
TI Grafted hydrophilic polymers as optical **sensor** substrates
AU Shah, Rajiv; Margerum, Suzanne Call; Gold, Michael
CS Crump Inst. Med. Eng., UCLA, Los Angeles, CA, 90024-1654, USA
SO Proc. SPIE-Int. Soc. Opt. Eng. (**1988**), 906(Opt. Fibers Med. 3), 65-73
CODEN: PSISDG; ISSN: 0277-786X
DT Journal
LA English
AB A prototype fiber optic O **sensor** was fabricated by grafting poly(2-hydroxyethylmethacrylate) (PHEMA), contg. the O quenchable fluorescent dye, **9,10-diphenylanthracene** (9,10-D), to a glass fiber. The PHEMA-glass fiber graft was optimized to maximize stability in hydrolytic environments. The fluorescence of the dye was quenched 20% when the **sensor** went from an O-free to an O-satd. environment. Transient response times of the **sensor** were reduced when the PHEMA graft thickness was reduced. Modeling of the transient data gave a diffusion coeff. of O in PHEMA of 2.15 .times. 10-6 cm2/s. Glucose oxidase was incorporated into PHEMA for the ultimate purpose of converting the fiber optic O **sensor** into a glucose **sensor**. Immobilization of glucose oxidase was accomplished through a phys. entrapment in the PHEMA **matrix**. Immobilization parameters such as thickness of the polymer layer, **enzyme** loading, and polymn. conditions were adjusted to give adequate sensitivity in the desired range of glucose concns. Immobilized glucose oxidase activity was measured over a wide range of **enzyme** loadings and glucose concns.
IT **7782-44-7, Oxygen,** analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, fiber optic biosensor for)
IT **1499-10-1, 9,10-Diphenylanthracene**
RL: ANST (Analytical study)
(fluorescent dye, in fiber optic biosensor with immobilized glucose oxidase for glucose detn.)

L120 ANSWER 13 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:507391 HCAPLUS
DN 109:107391
TI **Electrochemiluminescent** assays and kits using ruthenium and osmium bipyridyl complexes as labels
IN Massey, Richard J.; Powell, Michael J.; Mied, Paul A.; Feng, Peter; Della, Ciana Leopoldo; Dressick, Walter J.; Poonian, Mohindar S.
PA IGEN Inc., USA
SO PCT Int. Appl., 253 pp.
CODEN: PIXXD2
DT Patent

LA English
FAN.CNT 10

	PATENT NO.	KIND	DATE		APPLICATION NO.	DATE	
PI	WO 8706706	A1	19871105		WO 1987-US987	19870430	<--
	W: AU, DK, FI, JP, KR, NO, US						
	RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE						
	AU 8775816	A1	19871124		AU 1987-75816	19870430	<--
	AU 605158	B2	19910110				
	EP 265519	A1	19880504		EP 1987-904151	19870430	<--
	EP 265519	B1	19950913				
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE						
	JP 01500146	T2	19890119		JP 1987-503860	19870430	<--
	JP 07037464	B4	19950426				
	EP 647849	A2	19950412		EP 1994-120254	19870430	<--
	EP 647849	A3	19960515				
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE						
	EP 658564	A1	19950621		EP 1994-120516	19870430	<--
	EP 658564	B1	20020116				
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE						
	JP 09118688	A2	19970506		JP 1996-166280	19870430	<--
	CA 1339465	A1	19970916		CA 1987-536079	19870430	<--
	JP 11101800	A2	19990413		JP 1998-190615	19870430	<--
	IL 101990	A1	19980104		IL 1987-101990	19870501	<--
	IL 110557	A1	19980104		IL 1987-110557	19870501	<--
	IL 119484	A1	19990411		IL 1987-119484	19870501	<--
	IL 119895	A1	20010319		IL 1987-119895	19870501	<--
	FI 8705732	A	19871228		FI 1987-5732	19871228	<--
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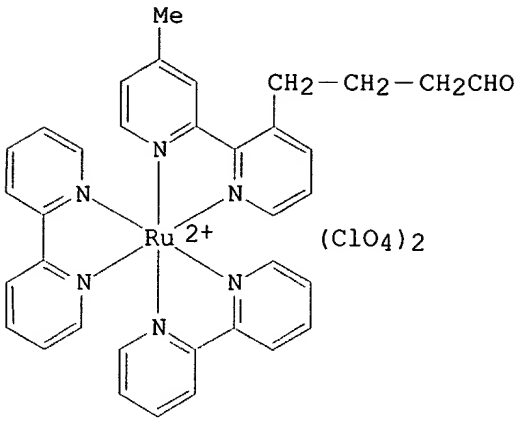
	NO 176071	B	19941017				
	NO 176071	C	19950125				
	DK 8706897	A	19880225		DK 1987-6897	19871229	<--
	DK 172940	B1	19991011				
	AU 9174338	A1	19910808		AU 1991-74338	19910410	<--
	AU 644150	B2	19931202				
	DK 9300162	A	19930212		DK 1993-162	19930212	<--
	DK 173025	B1	19991115				
	US 5635347	A	19970603		US 1994-188943	19940128	<--
	AU 9457540	A1	19940512		AU 1994-57540	19940302	<--
	AU 685071	B2	19980115				
	US 5591581	A	19970107		US 1994-227898	19940415	<--
	US 6165729	A	20001226		US 1994-196315	19940415	<--
	JP 07309836	A2	19951128		JP 1994-251174	19940908	<--
	JP 07267972	A2	19951017		JP 1994-275174	19941109	<--
	US 5770459	A	19980623		US 1994-348749	19941201	<--
	US 5716781	A	19980210		US 1995-470247	19950606	<--
	US 5811236	A	19980922		US 1995-468524	19950606	<--
	US 5846485	A	19981208		US 1995-465928	19950606	<--
	US 6271041	B1	20010807		US 1995-467936	19950606	<--
	US 6316607	B1	20011113		US 1995-472425	19950607	<--

PRAI	US 1986-858354	A2	19860430	<--
	EP 1987-904151	A3	19870430	<--
	JP 1994-251174	A3	19870430	<--
	WO 1987-US987	A	19870430	<--
	IL 1987-101990	A3	19870501	<--
	IL 1987-110557	A3	19870501	<--
	IL 1987-82411	A3	19870501	<--
	US 1987-117017	B2	19871104	<--
	US 1987-369560	A2	19871218	<--
	US 1988-188258	B1	19880429	<--
	US 1988-266882	B1	19881103	<--
	US 1988-266914	B1	19881103	<--
	US 1990-533931	B1	19900605	<--
	US 1990-539389	B2	19900618	<--
	US 1990-570226	B1	19900821	<--
	US 1991-652427	B2	19910206	<--

US 1991-728093	B1	19910710	<--
US 1991-773971	A2	19910927	<--
US 1991-792602	B1	19911115	<--
US 1994-195825	B3	19940210	
US 1994-196315	A3	19940415	
US 1994-227898	A3	19940415	
JP 1994-275174	A3	19941109	
US 1995-415756	B3	19950403	

GI



II

AB An analyte is detected by combining it with a reagent which repeatedly emits electromagnetic **radiation** upon exposure to a source of electrochem. energy, and detecting the electromagnetic **radiation** (**electrochemiluminescence**) emitted. This technique can also be used for competitive assays and for qual. anal. Legionella micdadei Cells were quantitated by a heterogeneous **electrochemiluminescent** immunoassay in which a suspension of cells was mixed with mouse monoclonal IgG antibody specific for L. micdadei, washed, and resuspended in rabbit anti-mouse IgG antibody labeled with 4,4'-bis(chloromethyl)-2,2'-bipyridyl bis(2,2'-bipyridyl) ruthenium (II) (I). After incubation, an aliquot was mixed with DMSO-H2O (1:1) contg. 0.1M NBu4BF4 and 18mM (NH4)2S2O8. The **electrochemiluminescence** at 0, 9.3 .times. 108, and 1.9 .times. 109 cells/10mL was 0., 90, and 160 mV, resp. I-labeled rabbit anti-mouse IgG antibody was about 81% as effective as unlabeled rabbit anti-mouse IgG antibody in competing with **enzyme**-labeled anti-mouse IgG antibody for binding to mouse IgG. Bis(2,2'-bipyridyl) [4-butan-1-al)-4'-methyl-2,2'-bipyridyl) ruthenium (II) diperchlorate (II) was prepd. by reaction of 4,4'-dimethyl-2,2'-bipyridyl with LiBu and 2-(2-bromoethyl)-1,3-dioxolane, reaction of the product with Ru bipyridyl dichloride dihydrate, and addn. of concd. NaClO4.

IT **14323-06-9 15158-62-0**
RL: PRP (Properties)
(**electrochemiluminescence** of)

IT **1499-10-1, 9,10-Diphenylanthracene**
RL: ANST (Analytical study)
(for **electrochemiluminescent** assays)

L120 ANSWER 14 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:488878 HCAPLUS
DN 109:88878
TI Photochemical reduction of NADP to NADPH and hydrogenation of 2-butanone using 2,2'-bipyridinium salts as electron carriers
AU Aono, Shigetoshi; Okura, Ichiro
CS Dep. Bioeng., Tokyo Inst. Technol., Tokyo, 152, Japan
SO Inorg. Chim. Acta (**1988**), 152(1), 55-9

CODEN: ICHAA3; ISSN: 0020-1693
DT Journal
LA English
AB The photochem. redn. of NADP was investigated in a 4-component system contg. an electron donor, a photosensitizer, an electron carrier, and a catalyst. Me viologen and 2,2'-bipyridinium salts were effective as electron carriers. The hydrogenation of 2-butanone proceeded by adding alc. dehydrogenase in the system where the redn. of NADP was achieved.
IT **14323-06-9**
RL: BIOL (Biological study)
(photochem. redn. of NADP by ferredoxin reductase in presence of, as photosensitizer)

L120 ANSWER 15 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:105385 HCAPLUS
DN 108:105385
TI A new sensing material for optical **oxygen** measurement, with the indicator embedded in an aqueous phase
AU Wolfbeis, Otto S.; Leiner, Marc J. P.; Posch, Hermann E.
CS Inst. Org. Chem., Karl-Franzens Univ., Graz, A-8010, Austria
SO Mikrochim. Acta (**1987**), Volume Date 1986, 3(5-6), 359-66
CODEN: MIACAQ; ISSN: 0026-3672
DT Journal
LA English
AB A new type of O-sensitive material is obtained by prepg. an aq. emulsion of a soln. of [Ru(bpy)3]Cl2 (bpy = 2,2'-bipyridine) in a rigid polymer. The fluorescence of this emulsion is related to the O partial pressure, but a Stern-Volmer plot is not linear over the whole pressure range. Aside from high sensitivity and specificity for O, this new type of sensing material has favorable anal. wavelengths allowing the use of low-cost optical-electronic equipment. Since the indicator is embedded in an aq. environment, the sensor should be capable of monitoring various kinds of reactions occurring in the aq. phase, for instance **enzymic** reactions which are accompanied by prodn. or consumption of O.
IT **7782-44-7, Oxygen**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, aq. emulsion of ruthenium bipyridine complex in rigid polymer as sensor for)
IT **14323-06-9, Tris(2,2'-bipyridine)ruthenium** dichloride
RL: ANST (Analytical study)
(**oxygen** sensor from rigid polymer contg. aq. emulsion of)

L120 ANSWER 16 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1987:455233 HCAPLUS
DN 107:55233
TI Glucose/**oxygen sensor**
AU Parker, J. W.; Cox, M. E.
CS Crump Inst. Med. Eng., UCLA, Los Angeles, CA, 90024, USA
SO Proc. SPIE-Int. Soc. Opt. Eng. (**1987**), 713(Opt. Fibers Med. 2), 113-20
CODEN: PSISDG; ISSN: 0277-786X
DT Journal
LA English
AB **Oxygen** concn. has been measured using fluorescence quenching in solid polymer hosts. The feasibility of generalizing these **oxygen** transducers to a wider class of chem. **sensors** through coupling to other chemistries is proposed. An example of such coupling is given in a glucose/oxyygen transducer. The glucose transducer is produced by entrapping an **enzyme**, glucose oxidase, in the composite **matrix** of a hydrophilic **oxygen** transducer. Glucose oxidase catalyzes a reaction between glucose and **oxygen**, thereby lowering the local **oxygen** concn. This transducer yields a glucose modified optical **oxygen** signal. A theor. model was developed, it describes the coupling of glucose concn. to relative

fluorescence intensity, the exptl. measurement of the key parameters in this model, and the evaluation of the sensitivity of the variation in relative fluorescence intensity with changes in glucose concn. The exptl. parameters include the diffusivity of **oxygen** in poly(2-hydroxyethylmethacrylate) (PHEMA) (1.36 .times. 10-7 cm2/s), the soly. of glucose in PHEMA (0.24 g in PHEMA/g in buffer), and the diffusivity of glucose in PHEMA (8.25 .times. 10-8 cm2/s). When these exptl. parameters are incorporated, the model developed predicts crit. design requirements of the transducer.

IT **1499-10-1, 9,10-Diphenylanthracene**
RL: ANST (Analytical study)
(biosensor contg., for glucose detn.)

IT **7782-44-7, Oxygen**, uses and miscellaneous
RL: USES (Uses)
(fluorescence quenching by, of diphenylanthracene, in glucose detn. by biosensor)

L120 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1987:224222 HCAPLUS
DN 106:224222
TI Improved charge separation and photosensitized hydrogen evolution from water with titanium dioxide particles on colloidal silica carriers
AU Frank, Arthur J.; Willner, Itamar; Goren, Zafrir; Degani, Yinon
CS Solar Energy Res. Inst., Golden, CO, 80401, USA
SO J. Am. Chem. Soc. (**1987**), 109(12), 3568-73
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB Laser flash photolysis and steady-state photolysis studies show that electrostatic interactions have a dramatic influence on the kinetics for charge sepn. and H prodn. in aq. systems (pH 9.8) of 20-nm diam. TiO2-modified SiO2 colloids in various combinations with an electron relay, a photosensitizer, and a Pt catalyst. Either direct excitation of the semiconductor or the photosensitizer Ru(bpy)32+ (bpy = 2,2'-bipyridine), electrostatically adsorbed to the colloid, initiate electron transfer to either the zwitterionic electron relay, N,N'-bis(3-sulfonatopropyl)-4,4'-bipyridinium (PVS0), or N,N'-bis(3-sulfonatopropyl)-2,2'-bipyridinium (DQS0), or methylviologen (MV2+). The rates and quantum yields for the formation of the radical PVS.bul.- anion in both the TiO2-SiO2/PVS0 and the TiO2-SiO2/Ru(bpy)32+/PVS0 systems decline with increasing ionic strength. The rate and quantum yields for H prodn. in both the TiO2-SiO2/DQS0/Pt and the TiO2-SiO2/Ru(bpy)32+/DQS0/Pt systems also show a similar ionic strength dependence. Kinetic anal. infers that repulsion of the reduced zwitterionic relay PVS.bul.- and DQS.bul.- from the neg. charged colloidal interface inhibits back electron transfer to both the semiconductor and the surface-attached oxidized photosensitizer Ru(bpy)33+. Formation of the cation MV.bul.+ radical and its back electron transfer to the semiconductor are rapid and imply that the MV2+ electron relay is in close proximity to the colloid. Both the photogenerated valence-band holes and the oxidized photosensitizer Ru(bpy)33+ oxidize surface Ti-O- groups of TiO2. This redox process has the important effect of recycling the photosensitizer for further reaction. The addn. of the superoxide dismutase **enzyme** to the oxidized TiO2-(SiO2) system regenerates, in part, the activity of the semiconductor to evolve H and to release mol. O.

IT **7782-44-7P, Oxygen**, preparation
RL: PREP (Preparation)
(formation of hydrogen and, from water, photosensitized, in system contg. titanium dioxide particles on colloidal silica carriers)

IT **15158-62-0, Tris(2,2'-bipyridine)ruthenium(2+)**
RL: USES (Uses)
(photosensitized hydrogen evolution from water with titanium dioxide particles on colloidal silica carriers in system contg.)

L120 ANSWER 18 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1986:586857 HCAPLUS
DN 105:186857
TI Photosensitized NAD(P)H regeneration systems. Application in the reduction of butan-2-one, pyruvic, and acetoacetic acids and in the reductive amination of pyruvic and oxoglutaric acid to amino acid
AU Mandler, Daniel; Willner, Itamar
CS Dep. Org. Chem., Hebrew Univ. Jerusalem, Jerusalem, 91904, Israel
SO J. Chem. Soc., Perkin Trans. 2 (**1986**), (6), 805-11
CODEN: JCPKBH; ISSN: 0300-9580
DT Journal
LA English
AB NADH and NADPH were formed by a photosensitized **enzyme**-catalyzed process. NADPH was formed in the presence of ferredoxin NADP-reductase with Ru(bpy)32+ (bpy = 2,2'-bipyridine) as photosensitizer, Me viologen as primary electron acceptor, and (NH4)3 EDTA or 2-mercaptoethanol. Zn(II) meso-tetramethylpyridiniumporphyrin was used as photosensitizer for the photoinduced prodn. of NADH with the same reaction components but with lipoamide dehydrogenase as the **enzyme** catalyst. The photoinduced NADH/NADPH regeneration systems were coupled to secondary **enzyme**-catalyzed processes, e.g. the redn. of butan-2-one to butan-2-ol, pyruvic acid to lactic acid, or acetoacetic acid to .beta.-hydroxybytyric acid; coupling to the reductive amination of pyruvic acid to alanine and of .alpha.-oxoglutaric acid to glutamic acid was also possible. The products showed high optical purity and the **enzymes** and coenzymes showed high turnover nos. and stability.
IT **14323-06-9**
RL: ANST (Analytical study)
(in photoinduced **enzyme**-catalyzed regeneration of NADPH, coupling of **enzyme**-catalyzed biosyntheses in relation to)

L120 ANSWER 19 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1986:582897 HCAPLUS
DN 105:182897
TI Chemical sensors based on **oxygen** detection by optical methods
AU Parker, Jennifer W.; Cox, M. E.; Dunn, Bruce S.
CS Crump Inst. Med. Eng., UCLA, Los Angeles, CA, 90024, USA
SO Proc. SPIE-Int. Soc. Opt. Eng. (**1986**), 586(Fiber Opt. Sens.), 156-62
CODEN: PSISDG; ISSN: 0277-786X
DT Journal
LA English
AB Fluorescence quenching is shown to be a viable method of measuring O concn. Two O/optical transducers based on fluorescence quenching were developed and characterized: one is hydrophobic and the other is hydrophilic. The development of both transducers provides great flexibility in the application of fluorescence to O measurement. One transducer is produced by entrapping a fluorophor, **9,10-diphenylanthracene**, in poly(dimethylsiloxane) to yield a homogeneous composite polymer matrix. The resulting matrix is hydrophobic. This transducer is extremely sensitive to PO2 as a result of O quenching the fluorescence of **9,10-diphenylanthracene**. This quenching is utilized in the novel method employed to measure the transport properties of O within the matrix. Results show large values for the diffusion coeff. at 25.degree., D = 3.5 .times. 10-5 cm2/s. The fluorescence intensity varies inversely with PO2. The second O transducer is fabricated by entrapping **9,10-diphenylanthracene** in poly(hydroxyethyl methacrylate). Free radical, room temp. polymn. is employed. This transducer is hydrophilic, and contains 37% H2O. The transport properties of O within this transducer are compared with those of the hydrophobic transducer. The feasibility of generalizing the O transducers to a wider class of chem. sensors through coupling to other chems. is proposed. An example of such coupling is given in a glucose O transducer. The glucose transducer is produced by entrapping an **enzyme**, glucose oxidase,

in the composite matrix of the hydrophilic O transducer. Glucose oxidase catalyzes a reaction between glucose and O, thereby lowering the local O concn. This transducer yields a glucose modified optical O signal. The operation of this transducer and preliminary results of its characteristic are presented.

IT **7782-44-7**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detection of, by fluorescence quenching of diphenylanthracene immobilized in polymer matrix, optical sensors for)

IT **1499-10-1**
RL: ANST (Analytical study)
(immobilized in polymer matrix, **oxygen** detection by fluorescence quenching of, optical sensors for)

L120 ANSWER 20 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1986:475275 HCAPLUS
DN 105:75275
TI Ruthenium(II) tris(bipyridyl) ion as a **luminescent** probe for **oxygen** uptake
AU Sasso, Miguel G.; Quina, Frank H.; Bechara, Etelvino J. H.
CS Inst. Quim., USP, Sao Paulo, 01498, Brazil
SO Anal. Biochem. (**1986**), 156(1), 239-43
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
AB An alternative technique is described for following the rate of O uptake by chem. and **enzymic** systems. This method is based on spectrofluorometric monitoring (excitation 450; emission 605 nm) of the well-known quenching effect of mol. O on the emission of the photoexcited title substance added to the reaction mixts. The rate of O consumption detd. by this method agrees with that obtained by conventional polarog. techniques in all of the following systems: ascorbate/Cu, glucose/glucose oxidase (EC 1.1.3.4), and propanal/horseradish peroxidase (EC 1.11.1.7); in the last case, agreement was obsd. both in the presence and absence of serum albumin and of chloroplasts. Spectrofluorometric data for amphotericin autoxidn. in DMSO are in accord with the rate of decay of the ESR signal of a spin trap added to the reaction mixt. The advantages and limitations of the present spectrofluorometric technique relative to conventional polarog. monitoring of dissolved O are discussed.

IT **15158-62-0**
RL: ANST (Analytical study)
(**luminescent** probe, for **oxygen** consumption detn. by fluorometry)

L120 ANSWER 21 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1986:203484 HCAPLUS
DN 104:203484
TI Assay for immobilized reporter groups
IN Arnold, Lyle J., Jr.
PA Molecular Biosystems, Inc., USA
SO PCT Int. Appl., 68 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 8503356	A1	19850801	WO 1984-US138	19840127	<--
	W: AU, DK, JP, NO, US					
	RW: AT, BE, CH, DE, FR, GB, LU, NL, SE					
	AU 8425770	A1	19850809	AU 1984-25770	19840127	<--
	AU 582341	B2	19890323			
	EP 170652	A1	19860212	EP 1984-901033	19840127	<--
	R: AT, BE, CH, DE, FR, GB, LI, LU, NL, SE					
	JP 61501047	T2	19860522	JP 1984-501025	19840127	<--
	CA 1255213	A1	19890606	CA 1985-472029	19850114	<--

NO 8503790 A 19850926 NO 1985-3790 19850926 <--
DK 8504367 A 19850926 DK 1985-4367 19850926 <--
PRAI US 1984-604641 19840127 <--
WO 1984-US138 19840127 <--
AB A sensitive and specific **luminescent** assay method is described for detn. of support **matrix** (e.g. nitrocellulose, agarose)-bound reporter groups <10,000 daltons in size (e.g. vitamin, cofactor, antigen, or carbohydrate). It consists of a component having a strong and specific affinity for reporter group, and a 2nd component capable of being readily coupled to a **light**-emitting system to produce high-affinity attachment of detector complex to the immobilized group. The amt. of bound detector complex is detd. with a **luminescence**-coupled reaction. The **light** emitted is quantitated with a luminometer, **light**-sensitive film, or **light**-sensitive charge-coupled device. The amt. of such **light** provides a measure of the reporter group bound to the support **matrix**. For example, biotin was measured using avidin as 1st component and biotinylated glucose-6-phosphate dehydrogenase (G6PDH) as 2nd component. A slurry of biotin-agarose beads was incubated with avidin, washed to remove unbound avidin, and resuspended in phosphate-buffered saline-Tween 80. An aliquot of resuspended sample was mixed with biotinylated G6PDH soln. The reaction mixt. was assayed for **bioluminescence** in a luminometer. The detection limit for biotin was .apprx.10-16M.
IT **1499-10-1**
RL: ANST (Analytical study)
(in immobilized reporter group **luminescent** detection)

L120 ANSWER 22 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1986:105509 HCAPLUS
DN 104:105509
TI Photochemical and chemical **enzyme** catalyzed debromination of meso-1,2-dibromostilbene in multiphase systems
AU Maidan, Ruben; Willner, Itamar
CS Dep. Org. Chem., Hebrew Univ. Jerusalem, Jersualem, 91904, Israel
SO J. Am. Chem. Soc. (**1986**), 108(5), 1080-2
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB N,N'-Dioctyl-4,4'-bipyridinium radical cation, octyl viologen, C8V.cntdot.+, is photogenerated in Sepharose beads using Ru(bpy)32+ (bpy = 2,2'-bipyridine) as sensitizer and NADH. Various electron donors such as EtOH, lactic acid and alanine are used to regenerate NADH with proper **enzymes**. The reduced photoproduct, C8V.cntdot.+, exhibits hydrophobic character and is extd. to an EtOAc soln. that suspends the beads. The photoproduct, C8V.cntdot.+, undergoes induced disproportionation in the org. phase to the two electron charge relay, C8V, due to opposite soly. properties of the disproportionation products in the 2-phase system. This charge relay affects the debromination of meso-dibromostilbene, (I), to trans-stilbene. The net processes correspond to the photosensitized debromination of dibromostilbene by EtOH, lactic acid and alanine. Dark chem. debromination of I is accomplished in the Sepharose beads-org. phase system by direct prodn. of C8V.cntdot.+ using formate and formate dehydrogenase.
IT **15158-62-0**
RL: ANST (Analytical study)
(as sensitizer, in dioctylbipyridinium radical cation photogeneration in stilbene **enzymic** prepn.)

L120 ANSWER 23 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1984:506872 HCAPLUS
DN 101:106872
TI Solar **light** induced formation of chiral 2-butanol in an **enzyme**-catalyzed chemical system
AU Mandler, Daniel; Willner, Itamar
CS Dep. Org. Chem., Hebrew Univ., Jerusalem, 91904, Israel
SO J. Am. Chem. Soc. (**1984**), 106(18), 5352-3

CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB The photosensitized prodn. of chiral (-)-2-butanol is accomplished in a chem.-**enzyme** catalyzed-system in which ruthenium-tris-bipyridine, Ru(bipy)32+, photosensitizes the redn. of dimethyl-4,4'-bipyridinium (methylviologen, MV2+), and the sensitizer is recycled by **oxidn**. of (NH4)3EDTA. The primary reduced photoproduct, MV+.cntdot., mediates the redn. of NADP to NADPH in the presence of ferredoxin-NADP reductase. The final step in the cycle involves the redn. of 2-butanone by NADPH in the presence of alc. dehydrogenase. The optical purity of the formed (-)-2-butanol is 100%. The net reaction that corresponds to the redn. of 2-butanone by (NH4)3EDTA is an endoergic process by .apprx.33 kcal/mol EDTA consumed.
IT **15158-62-0**
RL: ANST (Analytical study)
(as sensitizer, in chiral butanol **enzymic** prepn. with **light**)

L120 ANSWER 24 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1984:117310 HCAPLUS
DN 100:117310
TI Single-step phototoxic selection procedure for isolating cells that possess aryl hydrocarbon hydroxylase
AU Van Gurp, John R.; Hankinson, Oliver
CS Dep. Pathol., Univ. California, Los Angeles, CA, 90024, USA
SO Cancer Res. (**1983**), 43(12, Pt. 1), 6031-8
CODEN: CNREA8; ISSN: 0008-5472
DT Journal
LA English
AB The development of a selection procedure is described which utilizes the fact that certain polycyclic arom. hydrocarbons are rendered highly cytotoxic when illuminated with near-UV **light**. Twenty polycyclic arom. hydrocarbons were screened for phototoxicity and toxicity in the absence of **light** in the mouse hepatoma line Hepa1c1c7, which has high inducible aryl hydrocarbon hydroxylase (AHH) activity, and in AHH-deficient mutants derived from this line. In the assessment of phototoxicity, a period of time was allowed for the metab. of these compds. prior to illumination. Benzo(g,h,i)perylene had the greatest phototoxicity in cells lacking AHH but was not toxic to cells possessing AHH either in the presence or absence of **light**. Thus, under conditions of the selection procedure, cells which possess AHH and thus are capable of metabolizing, and therefore of eliminating, benzo(g,h,i)perylene (as detd. by the magnitude of the fluorescence of the compd. in the cells) are resistant to subsequent exposure to near-UV **light**, whereas cells which lack AHH and are thus unable to eliminate the compd. are killed by subsequent illumination. Furthermore, cells possessing AHH can be selected from a majority population of cells lacking the **enzyme** by this procedure.
IT **1499-10-1**
RL: PRP (Properties)
(phototoxicity of, in aryl hydrocarbon hydroxylase-contg. cell screening)

L120 ANSWER 25 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1984:2891 HCAPLUS
DN 100:2891
TI Determination of microamounts of L-amino acids by **enzymic oxidation**
AU Rigin, V. I.
CS Sci.-Res. Des. Inst. Probl., Krasnoyarsk, USSR
SO Zh. Anal. Khim. (**1983**), 38(9), 1730-3
CODEN: ZAKHA8; ISSN: 0044-4502
DT Journal
LA Russian
AB Micro quantities of L-amino acid were detd. by **oxidn**. with O in

the presence of immobilized L-amino acid oxidase (EC 1.4.3.2) and then measuring the resultant H2O2 by **chemiluminescence** method using **luminescent**-reagent contg. bis(2,4,6-trichlorophenyl)oxalate 5 .times. 10-3, **9,10-diphenylanthracene** 2.50 .times. 10-4, and (Me)3N 2 .times. 10-4M, dissolved in freshly distd. dioxane. The optimum reaction time of the sample in the reactor with immobilized **enzyme** is 1.5-2 min. A shorter time does not allow the reaction to go to completion and a longer time of contact results in lesser H2O2 yield. The O required for the amino acid **oxidn.** is introduced in the phosphate buffer. Amino acids at concns. 3 .times. 10-5M to 2 .times. 10-8M may be analyzed. Decreased sensitivity and reproducibility at high amino acid concn. is due to H2O2 decompn. and its interaction with the keto form of the amino acid.

L120 ANSWER 26 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1978:611469 HCAPLUS
DN 89:211469
TI **Chemiluminescence** determination of trace amounts of cholesterol with immobilized **enzymes**
AU Rigin, V. I.
CS All-Union Sci.-Res. Inst. Constructive Mater. Constr., Krasnoyarsk, USSR
SO Zh. Anal. Khim. (**1978**), 33(8), 1623-30
CODEN: ZAKHA8; ISSN: 0044-4502
DT Journal
LA Russian
AB Samples to be assayed for cholesterol (I) are injected into an analyzer having 2 **enzyme** reactors, one contg. immobilized cholesterol ester hydrolase, the other, cholesterol oxidase. The sample is carried through in a buffer stream. Effluent from the 2nd column is mixed with a buffered dioxane-based reagent contg. bis-(3,4,6-trichlorophenyl)oxalate, **9,10-diphenylanthracene**, and trimethylamine, and the **chemiluminescence** produced by H2O2 from the oxidase reaction is measured photometrically in a quartz flow-through cuvet. The **enzymes** are immobilized on ZrO2-coated porous quartz glass beads, and are stable for 8-10 wk. The limit of detection is 1 .times. 10-9M I in a 100-.mu.L sample of plasma. Response is linear for both free and esterified cholesterol from 10-8 to 5 .times. 10-4M. The error of detn. at 10-7-3 .times. 10-4M is .ltoreq.5%. Sample prepn. time is .apprx.3 min; residence times in the 1st and 2nd reactors are 5-6 min and 8-9 min, resp. Other oxalates and fluorescing agents tested performed more poorly than those cited.
IT **1499-10-1**
RL: ANST (Analytical study)
(in cholesterol detn., by **chemiluminescence**)

L120 ANSWER 27 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1978:588878 HCAPLUS
DN 89:188878
TI Photochemical generation of superoxide ion (O2-) by rose bengal and Ru(bpy)32+
AU Srinivasan, Vakula S.; Podolski, Denise; Westrick, Ned J.; Neckers, Douglas C.
CS Dep. Chem., Bowling Green State Univ., Bowling Green, Ohio, USA
SO J. Am. Chem. Soc. (**1978**), 100(20), 6513-15
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB The generation of superoxide ion (O2-) in irradiated solns. of Rose Bengal and Ru(bipyridyl)32+ was proved by the study of rate of O uptake in the above solns. contg. SO32-. The addn. of **enzyme** superoxide dismutase (SOD), changed the rate of O uptake in the illuminated reaction solns. confirming the O2- generation. Singlet O quenching expts. both in the absence and the presence of the **enzyme** SOD confirmed the independent generation of 1O2.
IT **15158-62-0**
RL: RCT (Reactant)

(photolysis of, in present of sulfite, superoxide ion formation in)

L120 ANSWER 28 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1978:542569 HCAPLUS
DN 89:142569
TI Singlet **oxygen** formation during peroxidase catalyzed degradation of carcinogenic N-nitrosamine
AU Duran, Nelson; Faljoni, Adelaide
CS Inst. Quim., Univ. Sao Paulo, Sao Paulo, Brazil
SO Biochem. Biophys. Res. Commun. (**1978**), 83(1), 287-94
CODEN: BBRCA9; ISSN: 0006-291X
DT Journal
LA English
AB The singlet O traps, 2,5-diphenylfuran and 1,3-diphenylisobenzofuran, were oxidized to cis-benzoylethylene and o-dibenzoylbenzene during the decompn. of diisopropyl-N-nitrosamine catalyzed by peroxidase. Singlet O quenchers inhibited this conversion and also the chemiluminescence accompanying the catalyzed reaction. The chemiluminescence was enhanced by 1,4-diazobicyclo[2.2.2]octane, fluorescein, eosin, rhodamine B, and rose bengal, but little effect was detected in the presence of 9,10-dibromoanthracene-2-sulfonate, **9,10-diphenylanthracene**-2-sulfonate, and anthracene-2-sulfonate. An emission spectrum of the unsensitized reaction in the 560-600-nm region was obsd. Thus, singlet O is formed during peroxidase-catalyzed degrdn. of diisopropyl-N-nitrosamine.
IT **7782-44-7**, biological studies
RL: BIOL (Biological study)
(singlet, formation of, in peroxidase decompn. of diisopropylnitrosamine)

L120 ANSWER 29 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1977:600480 HCAPLUS
DN 87:200480
TI A fluorimetric and electron spin resonance study of the **oxygenation** of benzo[a]pyrene; an interpretation of the **enzymic oxygenation**
AU Ioki, Yoshikazu; Nagata, Chikayoshi
CS Biophys. Div., Natl. Cancer Cent. Res. Inst., Tokyo, Japan
SO J. Chem. Soc., Perkin Trans. 2 (**1977**), (9), 1172-5
CODEN: JCPKBH
DT Journal
LA English
AB The **oxygenation** of the carcinogenic benzo[a]pyrene (BP) was examd. by treatment with H2O2, Fenton's reagent, peroxy acids, **9,10-diphenylanthracene** peroxide (which generates singlet O), and **O2**. These reagents act in different ways, but the same products (BP-3-ol, -6-ol, -6-oxyl radical, -diones, etc.) were obtained in the first 3 systems. The amts. of products depended on the reagent and the reaction conditions. The results are discussed in terms of chem. reactivities and explain why BP-3-ol but not BP-6-ol is a major metabolite. A mechanism involving direct **oxygenation** is postulated.

L120 ANSWER 30 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1974:501248 HCAPLUS
DN 81:101248
TI Singlet molecular **oxygen** and superoxide dismutase
AU Schaap, A. Paul; Thayer, Arthur L.; Faler, Gary R.; Goda, Kiyoshi; Kimura, Tokuji
CS Dep. Chem., Wayne State Univ., Detroit, Mich., USA
SO J. Amer. Chem. Soc. (**1974**), 96(12), 4025-6
CODEN: JACSAT
DT Journal
LA English
AB Expts. are described which indicated that superoxide dismutase [9054-89-1] did not quench singlet O [**7782-44-7**] as had been proposed by

other investigators. Singlet O was generated photochem. with the heterogeneous sensitizer, polymer-bound Rose Bengal, and by the thermal decompn. of the H2O-sol. 1-phospha-2,8,9-trioxaadamantane ozonide. Superoxide dismutase did not inhibit the reaction in H2O of singlet O with .alpha.-lipoic acid [62-46-4] and **9,10-diphenylanthracene**-2,3-dicarboxylic acid [52483-91-7].

IT **7782-44-7**, biological studies
RL: BIOL (Biological study)
(singlet, superoxide dismutase in relation to)

L120 ANSWER 31 OF 31 HCAPLUS COPYRIGHT 2002 ACS
AN 1968:505632 HCAPLUS
DN 69:105632
TI Cleavage of aromatic nuclei with singlet **oxygen**: significance in biosynthetic processes
AU Baldwin, J. E.; Basson, H. H.; Krauss, H., Jr.
CS Pennsylvania State Univ., University Park, Pa., USA
SO Chem. Commun. (**1968**), (16), 984-5
CODEN: CCOMA8
DT Journal
LA English
AB Aromatic ring cleavage by singlet O was examd. and related to biol. **oxidns**. of unsatd. systems which involve the **enzymic** generation of a species equiv. to singlet O in its **oxidative** power. An anthracene absorbed 1 mole of O, on photolysis, with production of the endo-peroxide. This product was rearranged to p-quinone in aq. acid and cleaved to give an aldehyde ester and o-quinone by rearrangement in anhyd. acidic non-nucleophilic media. The aldehyde was transformed via its oxime, to the nitrile, m. 209-11.degree., and the o-quinone yielded a quinoxoline when treated with o-phenylenediamine. These compds. were also produced by irradn. of the anthracene in the presence of acids and by prolonged irradn. in Et2O. 1,4-Peroxides can be transformed, by acid catalysts, to cleavage products of the type found in aromatic dioxygenase **enzymes**, and may be intermediates in such biol. processes. The 1,4-bridged endo-peroxides may be involved in the "NIH" shift since redn. of the diol followed by asymmetry allowed dehydration of the epoxide. The occurrence of natural cisoid-1,3-dienes leads to expectations of oxidized metabolites derived from the resp. endo-peroxides.

=> d his

(FILE 'HOME' ENTERED AT 16:06:15 ON 05 MAR 2002)
SET COST OFF

FILE 'REGISTRY' ENTERED AT 16:06:37 ON 05 MAR 2002
L1 1 S OXYGEN/CN

FILE 'HCAPLUS' ENTERED AT 16:06:56 ON 05 MAR 2002
E PITNER J/AU
L2 39 S E4-E6,E8,E9
E GUARINO R/AU
L3 16 S E3,E5-E7
E DIKE L/AU
L4 7 S E4-E6
E TIMMINS M/AU
L5 13 S E3,E6,E8-E10
E STITT D/AU
L6 8 S E3,E11,E12
E HU J/AU
L7 244 S E3
E HU JOANNA/AU
L8 6 S E4,E5
E HU JO ANNA/AU
L9 332 S L2-L8
L10 12 S TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM (1W) CHLORIDE

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L11          104 S TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM
L12            0 S TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM (L) SALT
L13            0 S TRIS 2 2# BIPYRIDINYL RUTHENIUM (1W) CHLORIDE HEXAHYDRATE
L14            0 S TRIS 2 2# BIPYRIDINYLRUTHENIUM (1W) CHLORIDE HEXAHYDRATE
L15            0 S TRIS 2 2# BIPYRIDINYLRUTHENIUM
L16            0 S TRIS 2 2# BIPYRIDINYL RUTHENIUM
L17         1217 S 9 10() (DIPHENYL ANTHRACENE OR DIPHENYLANTHRACENE)
L18            1 S TRIS 2 2# BIPYRIDINE RUTHENIUM (1W) CHLORIDE HEXAHYDRATE
L19         1389 S TRIS 2 2# BIPYRIDINE RUTHENIUM
L20            2 S L19 (L) CHLORIDE (L) HEXAHYDRATE

     FILE 'REGISTRY' ENTERED AT 16:16:24 ON 05 MAR 2002
L21            1 S 63373-04-6
L22           13 S 63373-04-6/CRN
L23            1 S 36309-88-3
L24            9 S  L22 AND 18/NR
L25            4 S L22 NOT L23,L24
L26            1 S 15158-62-0
L27          150 S 15158-62-0/CRN
L28           12 S L27 AND CL/ELS AND  H2O
L29            7 S L28 AND 3/NC
L30            4 S L29 NOT CD/ELS
L31          146 S L27 NOT L30
L32            1 S 1499-10-1

     FILE 'HCAPLUS' ENTERED AT 16:21:12 ON 05 MAR 2002
L33          147 S L24,L25
L34         3004 S L26,L30,L31
L35         1192 S L32
L36         3046 S L10-L20,L35
L37          386 S L36 AND (L1 OR OXYGEN?)
L38           36 S L32 AND O2
L39          392 S L37,L38
L40          578 S L36 AND OXIDAT?
L41           73 S L36 AND OXIDATIVE
L42          864 S L39-L41
L43           26 S L42 AND ENZYM?/SC,SX,CW,BI
L44            0 S L42 AND (CYTOCHROME(L)(P450? OR P 450)(L)REDUCTASE)
L45            0 S L42 AND CYTOCHROME(L)(P450? OR P 450)
L46            0 S L42 AND CYP450?
L47         6153 S CYTOCHROME(L)(P450? OR P 450)(L)REDUCTASE

     FILE 'REGISTRY' ENTERED AT 16:25:13 ON 05 MAR 2002
L48            2 S 9035-51-2 OR 9039-06-9
L49         2326 S CYTOCHROME(L)P 450
L50         2324 S L49 NOT L48

     FILE 'HCAPLUS' ENTERED AT 16:25:32 ON 05 MAR 2002
L51        32303 S L48
L52        41865 S CYTOCHROME(L)(P450? OR P 450)
L53          398 S CYP450?
L54          398 S ?CYP450?
L55        42546 S L51-L54
L56            0 S L42 AND L55
L57            0 S L36 AND L55
L58         3329 S L36 OR TRIS 2 2# BIPYRIDYL RUTHENIUM
L59         3061 S L36 OR TRIS 2 2# BIPYRIDYL RUTHENIUM (1W) CHLORIDE HEXAHYDRAT
L60         3046 S L36 OR TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM (1W) C
L61         3046 S L36 OR TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM .
L62         3329 S L58-L61
L63         3046 S L36 OR TRIS 4 7 DIPHENYL 1 10 PHENANTHROLINE RUTHENIUM?
L64         3329 S L62,L63
L65            1 S L9 AND L64
L66            2 S L55 AND L64
L67        42293 S CYTOCHROM?(L)(P450? OR P 450?)
L68            2 S L64 AND L67
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L69           3 S L65,L66,L68
L70        4432 S L26 OR L64
L71           3 S L70 AND L55,L67
L72           4 S L69,L71
L73        1295 S L70 AND  (L1 OR O2 OR OXYGEN? OR OXIDATIVE OR OXIDAT?)
L74         265 S L70 AND (CO OR CARBON MONOXIDE)
L75         819 S L70 AND OXIDATION

     FILE 'REGISTRY' ENTERED AT 16:35:55 ON 05 MAR 2002
L76           1 S CARBON MONOXIDE/CN

     FILE 'HCAPLUS' ENTERED AT 16:35:59 ON 05 MAR 2002
L77          16 S L76 AND L70
               E RESPIRATION/CT
               E E3+ALL
L78           1 S L70 AND (E1 OR E2+NT OR E3+NT OR E4+NT)
L79           2 S L70 AND RESPIRATION
L80           1 S L70 AND RESPIRATION?/CT
L81          21 S L72,L77-L80
L82         191 S L70 AND ?SENSOR?
L83        1521 S L70 AND ?LUMINES?
L84        1100 S L70 AND (IRRADIAT? OR RADIAT? OR LIGHT OR WAVELENTH)
L85         207 S L70 AND MATRIX
L86          83 S L70 AND (RUBBER OR PLASTIC OR SILICONE)
L87         177 S L70 AND (SILICA OR SIO2 OR SILICON DIOXIDE)

     FILE 'REGISTRY' ENTERED AT 16:38:49 ON 05 MAR 2002
L88           1 S 7631-86-9

     FILE 'HCAPLUS' ENTERED AT 16:38:55 ON 05 MAR 2002
L89          87 S L70 AND L88
L90         127 S L83,L84 AND L82
L91           0 S L90 AND L81
L92          33 S L90 AND 9/SC,SX

     FILE 'REGISTRY' ENTERED AT 16:40:01 ON 05 MAR 2002

     FILE 'HCAPLUS' ENTERED AT 16:41:01 ON 05 MAR 2002
L93        1026 S L22,L27
L94        4976 S L93,L70
L95           3 S L94 AND L55,L67
L96           4 S L72,L95
L97         106 S L94 AND ENZYM?/SC,SX,CW,BI
L98         109 S L96,L97
L99          46 S L98 AND ?LUMINESC?
L100         23 S L98 AND SENSOR
L101         11 S L98 AND MATRIX
L102         14 S L98 AND (RUBBER OR PLASTIC OR ELASTOMER? OR SILICONE OR L88 O
L103         32 S L98 AND (IRRADIAT? OR RADIAT? OR LIGHT OR WAVELENTH)
L104         11 S L98 AND RADIAT?/SC,SX
L105         59 S L98 AND 9/SC,SX
L106         55 S L105 AND L99-L104
L107          4 S L105 NOT L106
L108         20 S L106,L107 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L109         44 S L98 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L110         20 S L108,L109 AND 9/SC,SX
L111       1683 S L94 AND (L1 OR O2 OR OXYGEN? OR OXIDAT? OR L76 OR CARBON MONO
L112       1009 S L111 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L113         21 S L112 AND L98
L114          8 S L94 AND RESPIR?
L115          1 S L114 AND (PY<=1991 OR PRY<=1991 OR AY<=1991)
L116         22 S L113,L115
L117         32 S L110,L116
L118         13 S L109 NOT L117
               SEL DN 6
L119          1 S L118 AND E1
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L120          31 S L117,L110 NOT L115
L121           1 S L9 AND L94
                 E US5567598/PN
L122          16 S L9 AND P/DT
                 SEL DN 7
L123           1 S E1 AND L122
L124           1 S L121,L123

     FILE 'HCAPLUS' ENTERED AT 16:57:44 ON 05 MAR 2002

     FILE 'WPIX' ENTERED AT 16:59:26 ON 05 MAR 2002
                 E US5567598/PN
L125           1 S E3

=> d bib abs tech l125

L125 ANSWER 1 OF 1  WPIX   COPYRIGHT 2002   DERWENT INFORMATION LTD
AN   1992-351419 [43]   WPIX
DNN  N1992-267939       DNC C1992-155934
TI   Detecting respiring microorganisms in fluid - using fluorescent cpd. which
     exhibits redn. in fluorescent intensity in the presence of oxygen.
DC   B04 D16 S03
IN   BURRELL, G J; HU, K; MONTHONY, J F; SAPITOWICZ, R; STITT, D T
PA   (BECT) BECTON DICKINSON CO; (BECT) BECTON DICKINSON & CO
CYC  8
PI   EP 509791     A1 19921021 (199243)* EN   23p
        R: DE FR GB IT
     AU 9214829    A  19921022 (199250)
     CA 2066329    A  19921019 (199302)
     JP 05137596   A  19930601 (199326)       18p
     AU 647609     B  19940324 (199417)
     JP 07073510   B2 19950809 (199536)       18p
     EP 509791     B1 19960703 (199631)  EN   22p
        R: DE FR GB IT
     DE 69211895   E  19960808 (199637)
     US 5567598    A  19961022 (199648)       18p <--
     CA 2066329    C  20000620 (200043)  EN
ADT  EP 509791 A1 EP 1992-303391 19920415; AU 9214829 A AU 1992-14829 19920410;
     CA 2066329 A CA 1992-2066329 19920416; JP 05137596 A JP 1992-98368
     19920418; AU 647609 B AU 1992-14829 19920410; JP 07073510 B2 JP 1992-98368
     19920418; EP 509791 B1 EP 1992-303391 19920415; DE 69211895 E DE
     1992-611895 19920415, EP 1992-303391 19920415; US 5567598 A Cont of US
     1991-687359 19910418, US 1993-25899 19930303; CA 2066329 C CA 1992-2066329
     19920416
FDT  AU 647609 B Previous Publ. AU 9214829; JP 07073510 B2 Based on JP
     05137596; DE 69211895 E Based on EP 509791
PRAI US 1991-687359   19910418; US 1993-25899    19930303
AN   1992-351419 [43]   WPIX
AB   EP    509791 A UPAB: 19931115
     (A) A method for detecting the presence of respiring microorganisms in a
     fluid is claimed, comprising (a) contacting the fluid with a sensor
     compsn. which comprises a fluorescent cpd. (FC) that exhibits a redn. in
     fluorescent intensity when irradiated with light contg wavelengths which
     cause the cpd. to fluoresce upon exposure to oxygen, (b) irradiating the
     sensor compsn. with light contg. wavelengths which cause the FC to
     fluoresce. (c) measuring or visually observing the fluorescent light
     intensity from the FC and (d) comparing the measurement to that of a
     control not contg. a respiring microorganism, where an increase in
     fluorescent intensity is indicative of the presence of respiring
     microorganisms. The FC may be tris-4,7-diphenyl-1,10-phenanthroline
     ruthenium (II) salts or tris-2,2'-bipyridyl ruthenium (II) salts.
          Also claimed are (B) a method of determining the effect of an
     antibiotic or antimicrobial compsn. on a respiring microorganism,
     comprising (a) prepg. a broth of the microorganism, (b) contacting the
     broth with a sensor compsn. as in (A) (c) admixing with the broth, a
     quantity of the antibiotic or antimicrobial compsn. (d) irradiating the
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sensor compsn. with light contg. wavelengths which cause the FC to fluoresce, (e) measuring or visually observing the intensity of fluorescent light from the FC and (f) comparing the measurement to that of a negative control not in contact with respiring microorganisms, where an increase in fluorescent intensity relative to the control is indicative of the presence of respiring organisms, thereby indicating the ineffectiveness of the quantity of the antibiotic or antimicrobial compsn.

USE/ADVANTAGE - The method can be used for the rapid measurement and/or detection of respiring microorganisms. The method can also be used to detect the presence of O2 dependent compsns. such as enzymes. It can also be used to test the susceptibility of a microorganism to a cpd. such as an antibiotic.

1/6

Dwg.1/6

ABEQ JP 05137596 A UPAB: 19931116

ABEQ EP 509791 B UPAB: 19960808

A method for detecting the presence of respiring aerobic microorganisms in a fluid comprising: (i) contacting said fluid with a sensor composition which comprises a fluorescent compound that exhibits a reduction in fluorescent intensity, when irradiated with light containing wavelengths which cause said compound to fluoresce, upon exposure to oxygen; (ii) irradiating said sensor composition with light containing wavelengths which cause said fluorescent compound to fluoresce; (iii) measuring or visually observing the fluorescent light intensity from said fluorescent compound; and (iv) comparing said measurement to that of a control not containing a respiring aerobic microorganism, wherein an increase in fluorescent intensity is indicative of the presence of respiring aerobic microorganisms.

Dwg.0/6

ABEQ US 5567598 A UPAB: 19961202

Detection of the presence of respiring microorganisms in a fluid comprises: (i) contacting the fluid with a sensor compsn. which comprises a fluorescent cpd. that exhibits a redn. in fluorescent intensity, when irradiated with light contg. wavelengths which cause the cpd. to fluoresce, upon exposure to oxygen, where the presence of the sensor compsn. is non-destructive to the microorganism; (ii) irradiating the sensor compsn. with light contg. wavelengths which cause the fluorescent cpd. to fluoresce; (iii) measuring or visually observing the fluorescent light intensity from the fluorescent cpd. while irradiating the sensor cpd. with the light; (iv) comparing the measurement to that of a control not contg. a respiring microorganism, where the control is selected from: a reagent control not in contact with respiring microorganisms and a calculated threshold, where a change in fluorescent intensity relative to the fluorescent intensity of the control is indicative of the presence of respiring microorganisms; and (v) in the event that no such increase is measured or observed, repeat steps (ii), (iii), and (iv) as needed, to detect the presence of respiring microorganisms in the fluid.

Dwg.0/6